

CLAIMS

1. A method for manufacturing an austenitic stainless steel characterized by including the following steps of:

 performing nitriding on the austenitic stainless steel for use on member directly contacting with melted metal and melted alloy at a heating temperature to form a nitride-reformed layer and a passivation film on the surface of the austenitic stainless steel; and

 forming a passivation film on an outermost surface of the stainless steel.

2. The method for manufacturing austenitic stainless steel of claim 1, wherein the nitride-reformed layer includes chromium and nitrogen as their solid solutions, but excludes chromium compound.

3. The method for manufacturing austenitic stainless steel of claim 1, wherein the passivation film is a chromium oxide film.

4. The method for manufacturing austenitic stainless steel of claim 1, wherein the nitride-reformed layer has the thickness of 5 to 15 μm .

5. The method for manufacturing austenitic stainless steel of claim 1, wherein the steel includes SUS316 stainless steel and SUS304 stainless steel.

6. The method for manufacturing austenitic stainless steel of claim 1, wherein the heating temperature is 380 to 430 °C, most preferably 420 °C.

7. The method for manufacturing austenitic stainless steel of claim 1, wherein a period of the nitriding time stays from 15 to 25 hours, most preferably 20 hours.

8. A solder-melting tank characterized in that the unit comprises a solder bath for melting and storing solder and an immersion type heater installed in the solder bath; and

that in the solder bath and the immersion type heater, respectively, austenitic stainless steel having a nitride-reformed layer and a passivation film is used on the surface thereof.

9. The solder-melting tank of claim 8, wherein in a duct with nozzle contained in the solder bath and installed in the melted solder, austenitic stainless steel having a nitride-reformed layer and a passivation film is used on the surface thereof.

10. The solder-melting tank of claim 8, wherein in a jet agitation shaft and a jet agitation fin of melted solder, which are installed in the solder bath, austenitic stainless steel having a nitride-reformed layer and a passivation film is used on the surface thereof.

11. The solder-melting tank of claim 8, wherein the nitride-reformed layer includes chromium and nitrogen as their solid solutions, but excludes chromium compound.

12. The solder-melting tank of claim 8, wherein the passivation film is a chromium oxide film.

13. An automatic soldering apparatus comprising a conveying belt and a solder-melting tank, characterized in that in the solder-melting tank, austenitic stainless steel having a nitride-reformed layer and a passivation film is used on the surface thereof.

14. The automatic soldering apparatus of claim 13, wherein the nitride-reformed layer includes chromium and nitrogen as their solid solutions, but excludes chromium compound.

15. The automatic soldering apparatus of claim 13, wherein the passivation film is a chromium oxide film.